

**Notice of Allowability**

Application No.

09/916,784

Examiner

Ram N. Kackar

Applicant(s)

ANTOLIK, JERREL K.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE dated 10/5/2006.
2. ☒ The allowed claim(s) is/are 15-19,21,26 and 37-43.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|  | 9. <input type="checkbox"/> Other _____.   |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/5/2006 has been entered.

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

--- Withdrawn claims 27-30 and 32-36 are cancelled and claims 15 and 37 are further amended by this **EXAMINER'S AMENDMENT**. Claims 1-14, 20, 22-25 and 31 were cancelled earlier. Claims 15-19, 21, 26 and 37-43 are allowed.

**Claims 15 and 37 are amended as below:**

Claim 15           A plasma processing system, comprising:  
                    a set of rings, including a top ring and a set of lower rings having at least one lower ring;  
                    a stepped hanger structure coupled to said top ring, said stepped hanger structure supporting said set of lower rings;

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a hanger assembly including a plunger shaft and a hanger adapter lip portion, said hanger adapter lip portion being fixed relative to said plunger shaft;

a receiving bore defined by a first cavity through said top ring, wherein a longitudinal axis of said first cavity is substantially parallel to a longitudinal axis of said plunger shaft, and wherein said first cavity is larger than said hanger adapter lip portion; and

a locking bore defined by a second cavity partially through said top ring, wherein said stepped hanger structure is angularly offset from said locking bore, and a longitudinal axis of said second cavity is substantially parallel to said longitudinal axis of said plunger shaft, and wherein said second cavity **having a first locking bore portion configured to accommodate configured to receive said hanger adapter lip portion and a second locking bore portion configured to accommodate said plunger shaft, said second locking bore portion having a smaller cross-sectional dimension than a cross-sectional dimension of said first locking bore portion**, and said receiving bore and said locking bore are connected with a shaft passage created through said top ring that at least accommodates a passage by said plunger shaft from said receiving bore to said second locking bore portion of said lock bore, said stepped hanger structure projecting from a first surface of said top ring in a first direction away from said first surface, said hanger assembly, when locked in said locking bore, projects from a second surface of said top ring that is opposite said first surface in a second direction that is opposite from said first direction such that said plunger shaft protrudes through said second surface, said hanger assembly, when said hanger adapter lip is locked in said locking bore, is coupled to said top ring without traversing through said set of lower rings, said stepped hanger structure on the other hand traverses through at least one ring in said set of lower rings when said stepped hanger structure is coupled to said top ring.

Claim 37 A plasma processing system having a plasma processing chamber, comprising:

a hanger assembly including a plunger shaft and a hanger adapter lip portion, said hanger adapter lip portion being fixed relative to said plunger shaft, said hanger assembly being coupled to a component of said plasma processing chamber; and

a ring assembly configured to be detachably coupled to said hanger assembly, said ring assembly including

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a set of rings, including a top ring and a set of lower rings having at least one lower ring, and

a stepped hanger structure coupled to said top ring, said stepped hanger structure supporting said set of lower rings,

wherein said top ring has a receiving bore defined by a first cavity through said top ring, said first cavity being larger than said hanger adapter lip portion, said top ring also has a locking bore defined by a second cavity partially through said top ring, **said second cavity having a first locking bore portion configured to accommodate said hanger adapter lip portion and a second locking bore portion configured to accommodate said plunger shaft, said second locking bore portion having a smaller cross-sectional dimension than a cross-sectional dimension of said first locking bore portion**, said stepped hanger structure being angularly offset from said locking bore, said second cavity being configured to receive said hanger adapter lip portion, said receiving bore and said locking bore being connected with a shaft passage created through said top ring that at least accommodates a passage by said plunger shaft from said receiving bore to said lock bore, said stepped hanger structure projecting from a first surface of said top ring in a first direction away from said first surface, said hanger assembly, when locked in said locking bore, projects from a second surface of said top ring that is opposite said first surface in a second direction that is opposite from said first direction such that said plunger shaft protrudes through said second surface, said hanger assembly, when said hanger adapter lip is locked in said locking bore, is coupled to said top ring without traversing through said set of lower rings, said stepped hanger structure on the other hand traverses through said set of lower rings when said stepped hanger structure is coupled to said top ring,

wherein said ring assembly, including said set of rings and said stepped hanger structure, is configured as a pre-assembled unit to facilitate coupling with said hanger assembly in a twist-n-lock manner using said receiving bore, said shaft passage, and said locking bore.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph A. Nguyen on 12/5/2006.

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3. Claims 15-19,21,26 and 37-43 are allowed.

### **DRAWING**

4. The following changes to the drawings have been approved by the examiner and agreed upon by applicant:

Drawing 3 should be modified to show detail of the locking bore configured to accommodate plunger shaft with hanger adapter lip in order to hang the top ring.


In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ram Kackar

Primary Examiner AU 1763